

Phylogenesis of the Dreamtime

David Rose

Abstract

The aim of this paper is to sketch some possible correlations between phases in the development of languages in Australia, and phases in the archaeological record of people in the continent. The technique is to compare Australian language groupings, at the scales of phylum, family, group, language and dialect, with events in the climatic and archaeological history of the continent. The emerging historical account is also correlated with other evidence from linguistics, anthropology and mythology, to identify four broad historical phases associated with expansions and contractions of resources and human populations. Universalist maxims about rates of language and cultural change are challenged by these data, suggesting that rates of change in Australia may have been considerably slower than rates in Europe, where such maxims originate. It is argued that this gradual change is more consistent with Aboriginal communities' own accounts of their histories.

KEYWORDS: AUSTRALIAN LANGUAGES; LANGUAGE EVOLUTION; LANGUAGE AND CULTURE; COMPARATIVE MYTHOLOGY; ARCHAEOLOGY AND LANGUAGE

Theories of change

Change has been a constant theme in ethnography. It is often supposed that past ethnographers painted a 'static' picture of Indigenous Australian cultures. But theories of cultural change have always been central to the ethnographic project. The grand theory of change in the late nineteenth century was social evolutionism, with Australian hunter gatherers near the start and and

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Victorian bourgeois society at the end of progress' march. Amongst its exponents were the leading Australian anthropologists Alfred Howitt and Baldwin Spencer, who also saw an evolutionary progression from one Australian culture to another, with a cline of primitivism from the coast to the arid centre of the continent (Thomas, 2011). Although these notions faded from academic fashion over the twentieth century, elements were still explicitly voiced in Australian school books well into the 1960s.

Alongside evolutionism, another popular theme in social theory imported to Australia was migration and conquest, influenced by the post-Roman peregrinations of Germanic tribes, and the Indo-Europeans before them. Thus the Australian ethnographic literature of the late nineteenth and early twentieth centuries is littered with speculations about tribal migrations and conquests across the continent. Even today, accounts of Aboriginal Australia rarely begin without apparently scientific descriptions of original migrations to Australia, with arrows pointing south from various points in Indonesia and New Guinea. In academic ethnography, survival of the fittest gave way to diffusionism during the twentieth century, under the influence of A. P. Elkin's doctoral supervisor, Grafton Elliot Smith, who believed that contemporary cultures had diffused from an original European 'Mediterranean race'. Elkin and other Australian anthropologists of the time frequently speculated about the diffusion of kinship systems and ceremonies from tribe to tribe, often rapidly and recently, alongside continuing rumours of tribal movements and invasions.

Diffusion remains a popular explanation for cultural change, alongside local innovation, but ethnographic theory has generally moved on to concerns with individual agency and identity on one hand, and complex social systems on the other. Descriptive linguistics is another matter. The dominant project in Australianist linguistics remains the reconstruction of proto-modern language groupings, using the comparative method of historical linguistics, as it was for the Indo-European language family in the nineteenth century. To this end, language descriptions in this tradition are weighted towards the smallest units of phonetics and word morphology, in order to compare the sound changes of words from language to language. Lyle Campbell, a prominent American defender of traditional comparative methods, enthuses 'historical linguistics is alive and well in Australia, and the standard methods and procedures work just as well here as elsewhere' (2004: xi).

The findings of this project are often interesting and potentially useful, but as in other fields, they are also coloured by the themes and assumptions of the academic history from which they arise. Today, most linguists would agree that all languages are equally complex and sophisticated within their contexts, and scales of primitiveness are academically taboo. But as in the wider culture, the inverse of primitivism can be exoticism. For example, one

prominent Australianist proposes that Aboriginal people did not traditionally talk directly to each other one-to-one, rather they ‘broadcast’ their words into the air, to be picked up by others in the vicinity (Walsh, 1997).

One of the universal tenets of the comparative method is that the articulation of words changes at a constant rate. By comparing sound changes across all the Indo-European languages, nineteenth-century philologists reconstructed a lexicon for a proto-Indo-European language, estimating its age at 5–8,000 years. Using the same methods, Australian linguists have found that the continent’s languages are very closely related. Most are claimed to belong in a single family dubbed Pama-Nyungan, after the words for ‘person’ in languages of north-east Queensland and south-west WA. Pama-Nyungan has been likened to the Indo-European family, with ‘a time depth of 5,000 years or less’ (O’Grady and Hale 2004: 91).

Although ‘non-Pama-Nyungan’ languages are claimed to be more diverse, all Australian languages belong in a single close phylum. This presents a conundrum for Australianists, since the constant sound change rule should expect a lot more diversity in the languages after their 40,000 years or more of separate evolution. Dixon (2002) argues that genealogical relations are not recoverable at that time depth, while others argue for large-scale language replacements on the model of Indo-European. One thing they are more certain about is a lack of morphological evidence of genetic relations to other world language families. Dixon was confident enough to proclaim that ‘there is absolutely no evidence for a genetic connection between Australian languages and anything outside the continent; there is not even the remote “possibility” that scholars could argue about’ (1980: 238).

Languages in common

Having learnt an Australian language while living with Aboriginal communities, long before encountering academic linguistics, such claims of unknowable difference have always disturbed me. If Pitjantjatjara was so different from English, how could I have been conversing fluently within months, sharing experiences and humour, and be able to accurately interpret between the languages in meetings? This is not an uncommon experience for Europeans learning Australian languages. Conversely, how could speakers of Australian languages achieve the same with English? Likewise, as an apprentice in cultural traditions as well as language, that my Aboriginal teachers insisted were immutably grounded in particular places and immeasurably ancient, claims of rapid cultural diffusion, migrations and conquests have also bothered me.

My elders’ very conservative view of their language and culture was reinforced by the pedantic precision with which I was continually corrected, whether in speaking or in cultural activities such as cooking a kangaroo.

Each word and action was invested with a sacred value that demanded precise replication. When it came to sacred songs and ceremonies this precision was multiplied by the collective performance of many memories acting in concert. Their reproduction was thus no less exact than if it had been written down note by note, step by step, or word for word. The potential of these pedagogic strategies for faithfully reproducing cultural knowledge over deep time is remarkable. For instance I learnt after some time that the ‘dog’ Dreaming we performed each year in initiation ceremonies did not refer to dingoes, but to ‘marsupial dogs’, known to Europeans as the thylacine or ‘Tasmanian tiger’. The thylacine has been extinct in mainland Australia for at least 3,000 years. Yet there are sites, stories and ceremonies devoted to it all over the country, that were undoubtedly ancient long before their material subject disappeared.

When I came to research Pitjantjatjara as an academic study, I was less interested in the phonetics, morphology and syntax of standard Australianist descriptions, than in how the language is used by its speakers to enact their social relations and construe their experience (Rose 2001). By that time I had a good model for how at least one other language achieves these functions, through the functional descriptions of English by Halliday (1985), Martin (1992) and Matthiessen (1995) in particular. Following their example I explored the language from multiple perspectives – its social functions in enacting relations and construing experience, and its organization as systems of potential meanings and the structures of speech that express these potentials, in patterns of texts, wordings and sounds. Each chapter of this description ends with a comparison of Pitjantjatjara and English in each of these dimensions, from which I was able to conclude that, despite many differences,

Western Desert and English languages share not only the same overall sets of functional regions, but also comparable organisations and ranges of options in these regions, as well as similar strategies for realising functions, as phonological, lexicogrammatical and discourse semantic structures. In other words the commonalities are in three dimensions of the languages: their paradigmatic organisation, their syntagmatic realisation and their functional relations to social contexts. (Rose, 2001: 469)

Some of these commonalities can be illustrated with a Pitjantjatjara story translated into English. This is a Dreaming story (or myth) about the original acquisition of fire, told by Nganyintja, the author’s adopting mother. It starts with a setting in which the people were living with ‘black firesticks’, in other words without any embers to start a fire. Significantly, the darkness in which they lived is equated with ignorance. Only the plains bustard, or *Kipara*, had fire (Figure 1). He had previously stolen it and refused to give it to the people. The men chased him, attempting to snatch the firestick that he kept in his

head feathers. But *Kipara* kept walking on south across the desert until he reached the southern ocean, into which he submerged. At that moment, the black falcon *Warutjulyalpai* (literally ‘snatches-fire’), swooped down from the sky and snatched the firestick from *Kipara*’s head. He carried it back north to *Watar*, a hill that stands in the middle of the desert, and cast out firesticks across the land, for the people to pick up. At the end of the story the people are referred to as crows that have been crouching in the dark, but then jump up to dance when they finally obtain the fire. As in many Dreaming stories, the identity of protagonists as people and animals is often indeterminate; they have characteristics of either or both at different moments. As shown in Figure 1, the *Kipara*’s behaviour is reflected in the haughty demeanour and solitary habits of the bustard, as he strides away on long legs with his beak in the air.



Figure 1: *Kipara* or plains bustard.

The narrative is presented below with one clause to each line, with the English translation below. Each clause consists of one or more groups of words, which are spaced apart. Each word group instantiates one of a set of general types of meaning, including people, things, process, place, time or quality. This structural pattern is found in all languages, including Pitjantjatjara and English. That is, all languages construe human experience as sequences of processes, that involve people and things, in places and times (Caffarel *et al.* 2004). This general construal of experience is expressed as sequences of clauses, consisting

of word groups that express these meanings. This can be seen below, as the Kipara story unfolds in Pitjantjatjara and English, word group by word group, and clause by clause, one event after another. Throughout the text Nganyintja repeats the word *kunyu* 'it's said', reiterating that the story originates not with the teller, but with the whole community and its ancestors.

Kipara

tjukurpa kunyu

Dreaming story it's said.

anangu tjuta nyina-ngi manta nyanga-ngka

The people were living in this land.

manta wingki-ngka kunyu nyina-ngi anangu tjuta

In all the land it's said lived the people.

munu-ya paluru tjana waru kurakura kanyi-ningi tili maru-tjara

And those people useless fire had, with black firesticks.

tili maru-tjara kunyu nyina-ngi

With black firesticks it's said they were living.

nya-wa tjana putu kunyu waru mantji-ningi

Look, they were unable it's said fire to get.

munga purunpa maru-ngka munga maru-ngka

Like night in darkness in dark night,

munu tjana-ya watarku nyina-ngi

and those ones in ignorance were living.

ka kunyu wati kutju-ngku Kipara-ngku tili wiru-tjara-ngka nyina-ngi

And it's said one man Kipara with good firesticks was living.

ka ngura kutjupa tjuta-ngka wati kutjupa tjuta-ngku kuli-ni wati kutju

And in many places many men thought (of this) one man,

mantji-ntjikitja waru palu-nya

of getting that fire.

ka ya putu tjulya-ra tjulya-ra wana-ra tjulya-ra wana-ra

And they were unable to snatch it, snatching following, snatching following.

ka paluru a-nangi titutjara a-nkula a-nkula a-nkula

And he kept going continuously going going going.

ngura kutjupa-ngka ngura uru-lta-ngka wirka-nu uru pulka-ngka-lta

At another place at the sea he arrived, at the great ocean,

uru-ngka-lta kunyu ma-tjarpa-ngu Kipara panya paluru uru sea-ngka

In that sea it's said, he submerged that Kipara in that sea.

ka Warutjulyalpai wati Warutjulyalpai tjulpu panya Warutjulyalpai

wirtjapaka-nu katu wanu

And Warutjulyalpai the man Warutjulyalpai that bird Warutjulyalpai

soared through the sky,

ka kunyu a-nkula mapalku tjulya-nu
 And it's said flying quickly snatched (the fire).

ngalya-kati-ngu Watar-la wirkati-ngu
 He brought it back, to Watar he brought it,
munu wani-ngu tili ngura kutjupa-ngka
 and he cast out firesticks to other places.

ka waru-wi kaangka-ngku nya-ngu
 And those crows desiring fire saw it,

hai waru kampa ngalya wanu
 'Hey fire is burning towards us!'

munu tili tjulya-nu
 and firesticks they snatched up.

pulkara kunyu kaangka tjuta waru-wi pupa-ra pupa-ra-mpa kunyu
 Joyously it's said the crows desiring fire who had been crouching and crouching it's said,
ngalya-paka-nu-lta
 jumped up then and danced.

This apparently simple story shows a surprising range of common patterns between the languages. Here are a few, at the levels of: (a) the narrative genre, in which a complication is resolved by a hero, with the narrative structure of Orientation. Complication. Resolution; (b) the plot, in which an anti-hero takes fire from the people, and a hero recovers it for them (a common mythic theme); (c) protagonists construed as birds with human characteristics (as in many traditional stories); (d) the sequence of events, involving people and things in places and times; (e) events and their elements expressed as clauses and word groups; (f) events construed as processes of 'doing' (*snatch, follow, go, submerge*, etc); (g) relations between people, things, places and qualities construed as 'being' and 'having' (*lived in this land, had useless fire, [it was] like night*); (h) conjunctions connecting clauses in sequences, *munu/ka* 'and'; (i) identities of people, things and places tracked from clause to clause by reference words, *they, it that*, and repetition of lexical words; (j) the sequence of elements in each clause, usually starting with the identity of people or things (so that contrasting information structures are more prominent); (k) classes of words expressing meanings within word groups, such as nouns and pronouns for people, things and places, verbs for processes, adjectives and adverbs for qualities; (l) tense distinctions such as present, past or future, simple or continuous; and (m) repeated verbs expressing duration in time, 'snatching following, snatching following'.

On the other hand, there are a number of lower level differences. For example, English expresses certain meanings with prepositions like 'in/at/with', that Pitjantjatjara expresses with suffixes on nouns (as do many European

languages); the sequence of words in noun groups is modifier^head in English, but head^modifier in Pitjantjatjara (as in most European languages); English uses comparative reference, such as 'the same one/the other one' to distinguish identities, but Pitjantjatjara also uses 'switch reference' conjunctions *munu/ka* to achieve this function (in common with Papuan languages); and of course the forms of words themselves differ from language to language.

Despite these and other differences in expression, the meanings they realize are surprisingly similar. Above the level of individual words and morphemes, common patterns of meanings are realized by common patterns of wordings. The focus of the traditional comparative method from 'below', on the smallest units of language – phonemes and morphemes – sharpens the differences between languages, for the purpose of typological classification. In contrast, a functional perspective from 'above', on meanings in social contexts, reveals higher level relations between languages, no matter how genetically distant they may be.¹ It seems improbable that this large range of interlocking common features evolved independently in different languages. Descent from a common ancestor may be the simplest, most plausible explanation, despite the depth of time separating Australian and European languages.

Myths in common

The commonalities noted above go beyond features of language, to social contexts that are realized by language, including the narrative genre and mythic field of the Kipara story. From a functional perspective, language is not independent of the contexts that it realizes; rather language and its social contexts are integral dimensions of social semiotic systems. The same pedagogic processes that precisely replicate language systems from generation to generation also reproduce the systems of genres and fields of social activity that language encodes.

At the level of field, elements of the Kipara story may seem strange from a modern European perspective, such as people living without fire, and chasing a bustard across the land, who submerges it in the ocean, and a falcon who rescues it and casts out firesticks to crows who jump up and dance. But elements of this story are more familiar than they first appear. It transpires that the journey is actually a great religious pilgrimage known as the *Tjilkatja*, in which boys are initiated as men and betrothed in marriage. The men thinking about and chasing Kipara are the pilgrims, chasing the fire of secret sacred knowledge. Warutjulyalpai represents the elders who broadcast this knowledge in the form of sacred songs that initiates hear for the first time, and jump up to dance in the ceremonies. Religious pilgrimages, initiation, sacred songs and ceremonial dances are familiar themes the world over. Yet I could not

understand why Kipara had to steal the fire and travel 1,000 km to submerge it in the southern ocean (this does not happen in the *Tjilkatja*), before seeing similar stories in cultures beyond Australia.

In parts of the Pacific for example, it is a fish that steals the fire, and a parrot that dives into the sea to rescue and bring it back to the people. In Greece it is Zeus who takes the fire from men, and Prometheus who ascends to heaven and brings it back in a fennel stalk. In other Greek myths, the image of fire becomes a ring or cup of gold, that is thrown into the sea for the hero to rescue it. Minos throws his royal ring into the sea, promising Theseus his kingdom of Crete if he can retrieve it. In this version, the authority of religious knowledge symbolized by the fire becomes the authority of kingship symbolized by the ring. In Ireland the fire becomes shining salmon in a sacred pool at the source of the River Boyne, which the hero Finn must dive into and catch, to obtain the knowledge of the poets. In these and many other myths, the image of fire-in-water encapsulates the abstract concept of sacred cultural knowledge, that elders or leaders rescue from oblivion and pass on to following generations. Their authority derives from their possession and distribution of sacred knowledge to the community.

This is by no means the only mythological trope shared between Australian and other cultures. Another obvious example is the great serpents, often known in Australia as rainbow serpents, that ascend into the sky and dive back into the earth, and usually dwell within waterholes. They are typically portrayed as giant pythons with feathers or horns and a beard – simultaneously reptile, mammal, bird and human. Similar images are echoed from Africa to the Americas, such as the Aztec feathered serpent god Quetzalcoatl, or the horned, bearded and winged dragons of Eurasia, which are often associated with water. A third, well known example is the Seven Sisters myth, that is identified with the Pleiades star cluster (Andrews 2004). In Australia, these sisters were pursued all over the continent by a lustful hunter. He became the star cluster Orion, which follows the Pleiades across the sky. Myths about the Pleiades from around the world contain similar elements, such as the Greek Pleiades sisters who were also pursued by the hunter Orion. In many of these myths, the rising of these star clusters is associated with seasonal events, particularly harvest, planting, or ripening wild foods.

As with other artefacts of folk cultures, myths and their commonalities have been interpreted according to the fashionable theories of the time. James Frazer applied evolutionism to discern stages of cultural progress. Jung used psychoanalysis to explain their commonalities as ‘collective unconscious’, paraphrasing Durkheim’s theory of language as ‘conscience collectif’. Levi-Strauss’ interpreted them as semiotic systems, demonstrating historical links over vast areas, but followed Chomsky to suggest their common structures were innate in the human

brain. More recently, Joseph Campbell's theories reprise Jung's psychology and Frazer's social evolutionism. The metaphor of diffusion has also long been invoked, to explain commonalities across cultures, within and beyond Australia, along with convergent evolution theories borrowed from biology.

Each of these explanations may have some merit, but perhaps only marginally, if it is allowed that stories, like other aspects of language and culture, can be faithfully reproduced from generation to generation over millenia, so that their commonalities have historical bases. This is a basic assumption in typological linguistics, as it is for comparative mythology, in tracing relations between languages and myths within language families. Such historical explanations for the commonalities found in all dimensions of language, including mythological texts, can be correlated with material evidence from anthropology, archaeology, palaeoclimatology and genetics, as well as linguistics. An historical account of language evolution in general, drawing on evidence from these fields, was published in Rose (2006). It noted that evidence of significant phases in human evolution and prehistory frequently follow major ice ages, in which global climates deteriorated and human populations collapsed. Their re-emergence in the archaeological record as populations expand is consistently accompanied by major cultural innovations.

Phase 1: First arrival

The best known of these post-glacial innovations was the agricultural or Neolithic revolution, following the end of the last ice age around 9,000 years ago (9 kya). But the one preceding it is widely known as the 'Upper Palaeolithic revolution,' the evidence of which coincides with a major interstadial or warm period during the ice age from about 45 to 40 kya. In that brief period of fertility, modern human populations expanded from Africa right across Eurasia, from England to Siberia and southern Asia, and into Australia. They carried with them a common suite of cultural innovations, including techniques for processing plant fibres to make traps, nets, bags, clothes and shelters, patterns of plying, knotting and weaving, grindstones to extract nutrients from grass seeds, spearthrowers that extend the projectile power of a hunting spear, plant resins and animal sinews used to bind and glue compound tools and weapons in wood, stone and bone.

On top of such economic adaptations they also brought religion, the evidence for which includes ritual objects and burials accompanied with red ochre, still used across the world as a religious sacrament; carvings and paintings on ritual objects and rock surfaces representing people and animals in economic and ritual activities; and paraphernalia such as masks and necklaces of shell, bone and teeth, found in graves and shown in rock art, and

presumably religious myths such as those exemplified above. In short, much of the material and semiotic heritage of Aboriginal Australia is also the heritage of humanity as a whole. Exotic as it may seem from the perspective of an academic office or Victorian drawing room, it is only a story away from the lived experience of most of the world.

Surveying the evidence for the earliest occupation of Australia, O'Connell and Allen (2004: 849) concluded that, 'Archaeological data have been used to support several scenarios for modern human movement beyond a probable African homeland, one pegged at about 45–50 ka BP ... On current evidence, 45,000 calendar years is the best outside date for the colonization of Pleistocene Sahul.' Sahul is the term for the ice age Australian continent that included Papua and Tasmania, with relatively narrow straits separating it from the islands of 'Wallacea' and the Asian peninsula 'Sunda' that is now the islands of Indonesia (Figure 2).



Figure 2: Ice age Sahul.

Phase 2: Australian language phylum

It must be emphasized that these modern human movements were not migrations but population expansions, that spread into previously unoccupied

territories as numbers increased and resources allowed. Within a few millennia, populations had apparently expanded across most of Australia as far as Tasmania, including the arid centre, indicated by the sites in Figure 2. Nevertheless, the population was probably never large, due to the arid and highly variable ice age climate, as O'Connell and Allen (2007: 412) point out:

most of the last glacial cycle was marked by sharp, short-term temperature changes (shifts of 5–10°C over periods of less than a century) at intervals no more than a few millennia, often much less. Changes of this magnitude may have had an especially devastating impact on human populations living in areas of low relief, like nearly all of Sahul, where their effects on resource availability would have been similar over very wide areas.

From 28 to 15 kya, the climate deteriorated in the Last Glacial Maximum (LGM), and most of the interior was again largely de-populated. From archaeological evidence, Veth (1995: 734) suggests that 'desert lowlands would have represented a marginal habitat during the period of increased aridity associated with the Last Glacial Maximum ... and even regional abandonment occurring in favour of better-watered "refuge" areas.' Figure 3 shows effects of climatic variations on human population levels, measured by genetic markers in modern populations. A rapid population increase is associated with the Upper Palaeolithic (UP) expansion from 50 kya, and a population fall is associated with the LGM, followed by a gradual increase as the ice age ends.

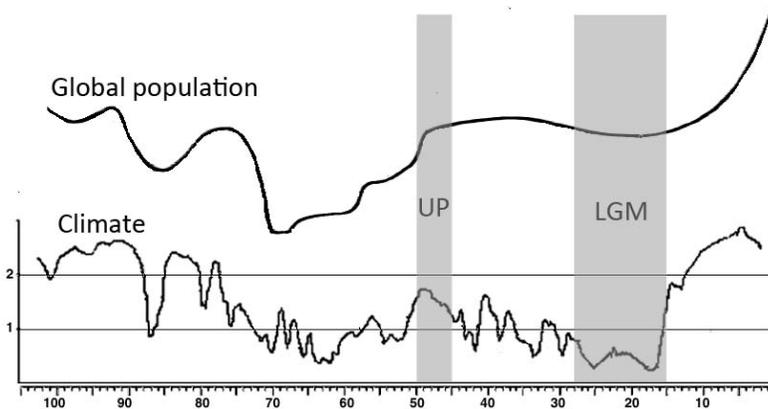


Figure 3: Climate and population changes during the last ice age.

Reviewing possible effects on Australian languages, Clendon (2006: 45) points out that throughout the LGM, 'the arid zone constituted a more or less uninhabited barrier between the populations of Tropical Sahul and those of the peripheral zone'. Clendon suggests that this population contraction and extended barrier to contact produced the major division of Australian

languages into the Pama-Nyungan and non-Pama-Nyungan (or 'Arafuran') groupings. These groupings are shown in Figure 4.



Figure 4: Pama-Nyungan and Arafuran (non-Pama-Nyungan) languages.

Adapted from Wikipedia Commons http://en.wikipedia.org/wiki/File:Australian_languages.png

Clendon's proposal does not solve the Australianists' conundrum of the Pama-Nyungan family, as it makes it three times older than Indo-European, breaking the constant sound change rule. It also runs counter to another maxim that expects greater linguistic diversity at the original location of a language phylum. Taking this rule as a starting point, Evans and Jones (1995) proposed an entirely different model, in which one language community on the edge of the Arafuran zone began to expand its influence around 5 kya, eventually replacing all the pre-existing languages across most of the continent, very much as Indo-European replaced languages across much of Eurasia in the same time period. Evans and Jones' proposal draws together the threads of earlier ethnographic theories mentioned above, including domination, migration and rapid diffusion, to propose similar massive language changes that were produced in Eurasia by documented waves of migration and conquest. McConvell (1996: 125) also reprises these themes, 'the Pama-Nyungan language family expanded to cover most of Australia, replacing languages previously spoken in many regions. Most phases of this expansion in the west of the continent have occurred in the last 3000 years as a result of migration [and] cultural diffusion events.'

On the other hand, Clendon's proposal has the advantage that it is consistent with the theory adhered to by Aboriginal elders throughout Australia about their own languages, that they are intrinsically related to the lands in which they are spoken, through the travels of ancestral beings in the creation period widely known as the Dreaming. The notion of language replacement is inimical to this Indigenous Australian theory. Rumsey (1993: 200) describes the language-land relation as primary in Australia:

the links between language and land which have proven most relevant have not been of the kind which are mediated by links between language and people (as in Western ideologies of 'tribe' and nation) but are direct links between languages and particular tracts of country ... In this formulation, language and country are directly linked, and the mediated link is between language and people.

In Eurasia by contrast, we know that languages have been carried from region to region for millennia by colonizing tribes and nations, including Indo-European Greeks, Romans, Aryans, Angles, Saxons, Arabs, Magyars and Turks among others, replacing the languages of the peoples they conquered. The same process of language replacement has continued across the globe through the modern period of European colonization. Whether this is an appropriate model to impose on Aboriginal Australia has been hotly debated amongst Australianists (Dixon, 2002; Bowern and Koch, 2004).

In sum, the proposal that the major division of Australian languages took place 28–15,000 years ago would make the Pama-Nyungan language family around three times older than comparable language families in Eurasia, such as Indo-European, that are known to be 5–8,000 years old. If this is the case, then the rate of language change in Australia may have been three times more gradual than that of recorded language changes in Eurasia.

Phase 3: Major language groups

Following the end of the LGM from 13 kya, the archaeological record shows a gradual re-occupation of the arid zone (Veth, 2000). Here the typologies produced by the Australianist project are particularly helpful, as they point to groups of languages that broadly map onto major culture blocs. Geographically, the largest is the South-West group, that extends from south western WA across the entire western arid zone, dividing into sub-groups as it spreads north and west across the deserts. Pitjantjatjara is classified as a dialect of the Western Desert language, which belongs to the large Wati sub-group of the South-West group. To the north, South-West languages now border the Arafuran languages in WA and NT. In central Australia, the Western Desert language now borders the Arandic language group, which extends north and

south from the Alice Springs region. To the south east, South-West languages border the Karnic group that spreads across the Lake Eyre basin, and the Baagandjic and Ngarindjeric groups of the Darling and Murray Rivers. The domains of these language groups are shown in Figure 5.



Figure 5: Language groups and culture blocs.

Each of these language groups also overlaps with one or more major culture blocs, associated with variations in marriage rules and initiation ceremonies, that are in turn associated with different 'macro-Dreamings'. The three Dreamings mentioned earlier, the acquisition of fire, great serpents, and Seven Sisters, are shared by cultures all over Australia. Each region has their own versions of the fire and serpent stories, but the Seven Sisters is a macro-Dreaming, a continuous story with variations that travels all over the continent, from the south-east coast across to the centre and south-west, and up to the Gulf of Carpentaria

There are thousands of other Dreamings that are more localized, but those associated with initiation tend to be longer. In the vast region of the South-West languages, this is the Red Kangaroo *Malu* Dreaming, that extends from south-west WA to the north Kimberley coast, and south through the centre as far the Spencer Gulf in SA. This is the Dreaming that the *Tjilkatja* pilgrimage follows, as symbolized in the Kipara story. This Dreaming and its associated

songs and ceremonies may have spread with speakers of the South-West languages, as they re-populated the arid zone after 13 kya. One corroborating date is suggested by a story recorded by David Unaipon from Narranga people near Adelaide, about the origin of Spencer Gulf (Smith 1930). The Gulf was once a swampy plain of waterholes, over which clans of animals feuded. The conflict was ended by the Red Kangaroo, who travelled north and struck the ground at the mouth of the Gulf, allowing the sea to flood in.

According to Dixon (1996: 139), 'It is certainly the case that many legends have some historical basis ... Generally, some actual event from the past is elaborated and interpreted for religious and social purposes'. Dixon cites many such stories around the Australian coastline that plausibly record the post-glacial rising of the seas at the end of the ice age 9,000 years ago. The historical basis for the Narranga story is the flooding of the Spencer Gulf. The elaboration is its link to the *Malu* Red Kangaroo Dreaming arriving from the north. On these bases, the travels of the *Malu* Dreaming could perhaps be dated between 13 kya when the climate began to ameliorate, and 9 kya when sea level rises culminated.

Another such macro-Dreaming is the story of the hero *Wilyaru*, who travelled from the Flinders Ranges, south to Adelaide and the Eyre Peninsula, north to the Lake Eyre region, and east to the Darling River. Men were initiated into the *Wilyaru* Dreaming throughout this region that includes the South-West Yura sub-group, and neighbouring Karnic and Baagandjic language groups. East of the Darling River lie the plains of western NSW, where men were initiated into the macro-Dreaming of the creator hero *Baimi*, who travelled throughout much of NSW, including the east coast, and into Victoria and southern Queensland.

Alongside these mytho-ceremonial systems are systems for classifying kin relations that also tend to correlate with culture blocs and language groups. Throughout the *Baimi* regions of NSW, Victoria and southern Queensland, people were classified into four kinship 'sections', which they inherited through their mothers. Their ideal marriage partners were the children of those classified as their mothers' brothers. The section system divides societies into two divisions or moieties, where members of one moiety ideally marry members of the opposite moiety. The two intermarrying moieties jointly conducted the *Baimi* initiation ceremonies, which formalized betrothals of initiates.

Four sections are produced by dividing each marital moiety into two alternate generations, including grandparents and grandchildren on one side, and their parents and children on the other. Table 1 gives the male names for the sections in the Wiradjuric language group of western NSW. The vertical axis divides the marital moieties; the horizontal axis divides the alternate generations.

Table 1: South-eastern section names

ippai	murri
kabi	kumbu

In this matrilineal system, *ippai* are the mothers' brothers of *kabi*, who ideally marry *kumbu*, whose mothers' brothers are *murri*. In contrast, in the *Wilyaru* region, only two intermarrying matrilineal moieties are named, rather than sections. Along the Darling River these moieties are explained by the Eagle and Crow macro-Dreaming, in which Crow is burned and buried by his Eagle brother-in-law, but escapes. This image also has implications for in-law roles in initiation ceremonies, in which initiates are betrothed.

Throughout much of the South-West *Malu* region, there is also a four section system, but inherited through the father instead of the mother. Table 2 gives the widely used Kariera names for these sections.

Table 2: Western section names

panangka	purrula
paljarri	kamarra

In this patrilineal system, *panangka* are the fathers of *paljarri*, who ideally marry *kamarra*, who are the children of *purrula* men. *Purrula* are the mothers' brothers of *paljarri* men, so the outcome of this system is the same as the south-eastern system, that one ideally marries children of those classified as mothers' brothers. In the *Malu* initiation ceremonies, the primary moieties are generational rather than marital, but their function is still to formalize betrothals along the same lines.

In the top end of the Northern Territory, within the Arafuran language region, there is a similar patrilineal four section system. Table 3 gives the names for these sections.

Table 3: Northern section names

ngarrayi	ngala
pangardi	mpijinpa

In this case, *ngarrayi* are the fathers of *pangardi*, who ideally marry *mpijinpa*, who are the children of *ngala* men. Again the ideal marriage partners are mothers' brothers' children. As with mythic systems such as rainbow serpents and Seven Sisters, the existence of four section systems in such widely dispersed regions suggests great antiquity, perhaps pre-dating the division of the Australian language phylum in the LGM. In contrast, Elkin proposed rapid diffusion in recent centuries to explain its prevalence, in line with the diffusion theories of his time. However, from detailed comparisons across world kinship systems, Allen (1989) argues that such a 'tetradic' system was the original form from which all systems have evolved, so it is likely to have been among the cultural items that arrived in Australia with the first peoples.

At some time in the past, speakers of South-West languages came into contact with speakers of Arafuran languages, and their two section systems were combined into a 'subsection' system with eight kin categories. The names of these eight categories are a combination of the four western and four northern names, set out in Table 4. From the forms of the northern section names, McConvell (1985) identified the language area in which this merging took place as close to the boundary between the South-West and Arafuran languages.

Table 4: Eight subsection names

western	panangka	purrula
northern	ngarrayi	ngala
western	paljarri	kamarra
northern	pangardi	mpijinpa

In this elaborated system, men ideally marry their mothers' mothers' brothers' daughters' daughters. This appears to restrict the options, but it also allows second and third choices for marriage partners.

The subsection system and its names have since spread south and west, as it is equally compatible with sectional, generational and marital moiety systems. Whether its origin was associated with the post-glacial expansion of the South-West language group is arguable. We can assume that South-West language speakers brought the western section system with them, and that they came into contact with the northern system some time after 9 kya. But if the constant sound change rule is applied to Australian languages, then this time frame for the merging of the two systems would be considered implausible. Based on the constant change rule, McConvell estimates its age at just 2,000 years. On the other hand, if the rate of language change in Australia is

three times more gradual than the rule for Indo-European, then a post-glacial dating becomes more plausible.

In sum, the emergence of major language groups and associated culture blocs in Australia may be associated with population expansions due to climatic amelioration at the end of the last ice age, around 13–9,000 years ago. Again, this age is around three times that of major Indo-European language groups, such as Germanic, Italic, Balto-Slavic, Indic or Iranian, whose ages are estimated in the order of 4–2,000 years.

Phase 4: Contemporary languages

The greening of the global climate reached its limit around 6 kya. In both Australia and Eurasia, increasing resources were associated with expanding populations and social changes. In Eurasia this period is associated with spreading of agriculture, urbanization and the beginning of the Bronze Age. In Australia, Haberle and David (2004: 177) report that ‘climatic and environmental transformations during the early to mid Holocene led to noticeable increases in human populations across north Queensland by 6000 cal yr BP’. O’Connell and Allen (2007: 401) remark that:

Putative markers of modernity began to multiply in Australia-New Guinea after 20 ka BP, sharply so in the early Holocene. By 6 ka BP, they were widespread ... Included in the post-LGM list are complex food collecting and processing technologies, definite evidence of habitat management ... elaborate art and ornaments, clear-cut examples of style in material culture, and striking investments in human body modification for symbolic purposes. Evidence of a parallel increase in population density continent-wide, probably by an order of magnitude or more over pre-LGM levels, is now emerging.

However, after 6 kya the climate began to cool and dry out again. Williams *et al.* (2004: 206) report that in the Australian region, ‘the Holocene thermal optimum occurred from 11 to 8.5 ka BP ... followed by a mid-Holocene thermal minimum from 6 to 2 ka BP, culminating around 4–3 ka BP’. The accompanying contraction in resources led to another contraction in Australian populations, and associated social changes. Haberle and David (*ibid*) found that in north Queensland ‘during the late Holocene, heightened regional populations began to fission into new and distinctively smaller land-owning and land-using groups’.

A similar pattern is likely to have followed aridification in other regions. It is in this period that modern Australian language and dialect boundaries may have emerged or at least sharpened, as populations contracted and contacts between language and dialect communities were reduced. For example, the Pitjantjatjara dialect territory is separated from its neighbouring dialects

by large waterless sand plains, that could not be traversed safely during droughts. Mountford (1948) records such an event in the region during the severe 1930s–1940s drought. The climatic deterioration from 4 to 3 kya would have included many such extended droughts, restricting contacts between the Western Desert communities, and fostering the emergence of distinct dialects.

Similarly, within the Yura sub-group, three divisions include the languages east of the Spencer Gulf, those of the arid zone to the north and west of the Gulf, and Wirangu along the Great Australian Bight. These languages may also have differentiated during the thermal minimum, when contacts between contracting populations were reduced by aridification. In western NSW, the three Wiradjuri languages of the grasslands and their dialects may also have differentiated as populations contracted around permanent water sources. Wiradjuri is associated with the southern rivers, the Murrumbidgee, Lachlan and Macquarie. Kamilaroi is associated with the northern rivers, from the Namoi to the Macintyre. The two dialects of Ngemba are associated with the Macquarie marshes to the north, and the lower Lachlan to the south, separated by the riverless Cobar plateau, but connected by the intermittently flowing Bogan River.

Many more examples could be drawn from correlations between contemporary Australian languages and dialects, and the geographic features that divide them, inviting systematic research. As far as time scales are concerned, the emergence of contemporary languages at 3–4,000 years ago would again make them three times as old as familiar European languages such as English.

Conclusion

With respect to the phylogensis of Dreamings, we can identify two phases. The first is associated with the population expansion of modern humans across Eurasia and into Australia, possibly bringing with them mythic systems found across the world, such as the acquisition of fire, great serpents and the Pleiades, among others. The age of these stories could thus be at least 45,000 years, but they may have a longer history that pre-dates the observed Upper Palaeolithic revolution in Africa. The second phase is associated with population expansions following the end of the ice age. These are the macro-Dreamings associated with initiation ceremonies, betrothal and kinship systems, found in major culture blocs, such as the *Malu*, *Wilyaru* and *Baiami* Dreamings. The age of these Dreamings may be in the order of 9,000 years or more. Comparable Dreamings that appear to date from this period include the origin story of the Yolngu of east Arnhem Land, whose ancestral hero arrived by canoe from a mythic eastern island. Dixon (1996) cites a number of similar origin myths, in which ancestral heroes arrived by canoe from the sea, usually from the direction in which the most closely related languages lie, and other myths which also apparently record the rising of the seas at 9 kya.

A mechanism by which such macro-Dreamings may come into being is poignantly suggested by Rose (in prep). In western NSW, early ethnographers such as R. H. Mathews recorded a large number of local Dreamings that are associated with particular estate groups. These Dreamings were intricately mapped onto the kinship section system, so that members of particular local Dreamings were likely to marry into a defined set of other local Dreamings. As the Aboriginal population collapsed in a series of colonial disasters, options for marrying into other local group Dreamings were reduced until, by the early twentieth century, marriage exchanges had coalesced around just a few remaining Dreamings. A similar process may have occurred during the ancient population contractions outlined above, so that a few macro-Dreamings emerged from a plethora of local Dreamings, and became associated with regional initiation, betrothal and kinship systems, as the population expanded again across the country.

With respect to the phylogenesis of Australian languages, we have identified four phases. The first is their arrival in the continent with the Upper Palaeolithic population expansions around 40-45 kya. The second is their division into Pama-Nyungan and Arafuran groupings with the population contraction during the Last Glacial Maximum, at 28-15 kya. The third is the emergence of major language groups with the population expansions of the early to mid-Holocene, around 13-6 kya. The fourth is emergence or sharpening of boundaries between contemporary languages and dialects, with the population contractions of the late Holocene, around 4-3 kya. These ages are compared with the ages of similar language groupings in Eurasia in Figure 6.

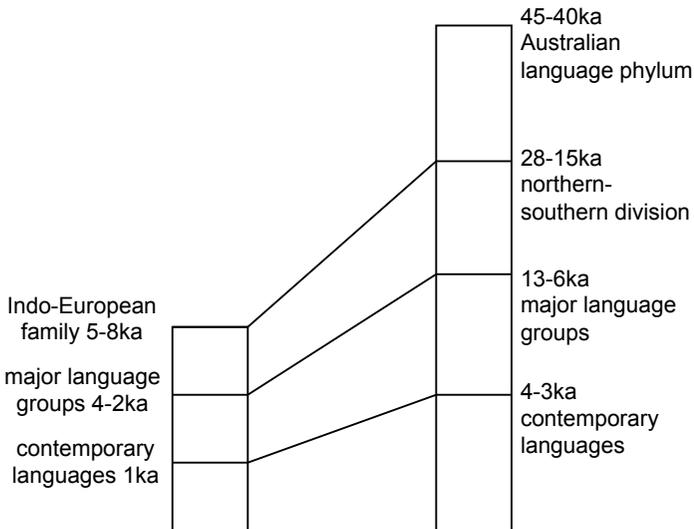


Figure 6: Comparison of ages of Australian and Indo-European language groupings.

The chart in Figure 6 is not to scale. Earlier phases are far longer than later phases, and the ages for Australian languages are around three times older than for Indo-European languages. In any case, these time frames are not specific dates but phases in time. Language and cultural changes in Australia would rarely be as catastrophically rapid as they have been since European colonization. This is a weakness in the dating of Australian languages and cultural features using standard methods based on European experience. Rates of cultural and linguistic change are dependent on the events that produce them. Migration, war, conquest and domination can radically change or obliterate languages in a generation. That has been the European experience for millennia, and exported to the world in recent centuries.

The Australian system is entirely different: its structuring principle is not domination but 'egalitarian mutuality' (Maddock, 1972); its strategy for managing social organization is not competition but reciprocity, consecrated through marriage exchanges in formal kinship and ceremonial systems; its approach to managing resources, both material and semiotic, is not exploitation and innovation, but conservation and stability. Conservation over deep time is achieved by inter-generational transmission processes that maximize precision of replication. These formalized strategies are built on a necessary foundation of human language and culture, the potential for inter-generational replication fidelity (Rose, 2006).

This extraordinary potential for replication fidelity was illustrated above with the Kipara story, showing commonalities between world languages that have been maintained over 40,000 years or more. At the next level it is illustrated by the maintenance of linguistic differences between neighbouring languages. Thus South-West languages and their north and eastern neighbours have maintained their distinctions, despite being in direct contact, and even inter-marrying, for perhaps nine millennia or more. At the next level, languages within each group and sub-group have also maintained their distinctions, despite increasing contact and intermarriage since differentiating in the late Holocene. What maintains these linguistic distinctions is speakers' social identification with a language community. Linguistic distinction is an intrinsic dimension of social distinction in most world cultures, and particularly in Australia. Linguistic differences may arise from reduced contacts between language communities in the past, but once there, they are maintained by current social distinctions between speakers. The mechanism for the maintenance of linguistic distinction is precise reproduction of each language and dialect's distinguishing features, both unconsciously in children's language learning, and deliberately in parents and others' language teaching.

These factors certainly predict differences in rates of language change in Eurasia and Australia. However, the finding in this paper that the Australian

rate is consistently three times more gradual than the Indo-European rate, at the scales of families, groups and languages, was not expected. Further research could focus on correlating languages and dialects with geographic features that explain their differentiation in relation to known climatic variations. This includes periods of resource and population contraction, such as the late Holocene cooling 4–3 kya, but may include other factors, particularly in resource rich areas such as the tropical north. Similarly, language groups may be correlated with geographic regions and climatic change, particularly from 13–9 kya, including re-population of arid regions, and adaptations to coastal flooding.

With respect to Aboriginal perspectives on cultural and linguistic origins, the period sometimes called the ‘Dreamtime’ is not a date but phase in the past of indeterminate age. The ancestral beings walked the earth during this period, creating the people, languages and cultural practices of today, leaving traces of their passing in the land, as ordinary mortals leave tracks in the ground. The Dreaming ancestors are construed as existing in the same time period, as they often crossed each other’s paths in their travels. For the purposes of an historical account, this paper has divided this period into dated phases. But in my view it also re-asserts the Aboriginal view of the past, since the creation period can equally well be seen as a unified whole, far beyond the memory of any person, but conserved in the collective memory of the whole community.

Note

1. Some of these commonalities are surveyed in traditional stories across language families in Rose (2005).

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